CONTENTS

PART 1 (FEBRUARY 1991)

Instructions to Authors PAGE

CROPS AND SOILS

SAVIN, R. AND SLAFER, G. A. Shading effects on the yield of an Argentinian wheat cultivar 1

CHAUDHARY, M. R., KHERA, R. AND SINGH, C. J. Tillage and irrigation effects on root growth, soil water depletion and yield of wheat following rice 9

MANCHANDA, H. R. AND SHARMA, S. K. Boron tolerance in wheat in relation to soil salinity 17

ACEVEDO, E., CRAUFURD, P. Q., AUSTIN, R. B. AND PÉREZ-MARCO, P. Traits associated with high yield in barley in low-rainfall environments 23

OSMAN, A. E., COCKS, P. S., RUSSI, L. AND PAGNOTTA, M. A. Response of Mediterranean grassland to phosphate and stocking rates: biomass production and botanical composition 37

PARSONS, A. J., ORR, R. J., PENNING, P. D. AND LOCKYER, D. R. Uptake, cycling and fate of nitrogen in grass–clover swards continuously grazed by sheep 47

RECHEL, E. A., DeTAR, W. R. AND BALLARD, D. Changes in the baseline of the Crop Water Stress Index for lucerne (*Medicago sativa*) over 3 years 63

MAHALAKSHMI, V., BIDINGER, F. R. AND RAJU, D. S. Effect of drought stress during grain filling in near-isogenic tall and dwarf hybrids of pearl millet (*Pennisetum glaucum*) 67

MULEBA, N., MWANKE, M. AND DRABO, I. Use of successional sowing in evaluating cowpea (*Vigna unguiculata*) adaptation to drought in the Sudan savannah zone. 1. Seed yield response 73

MULEBA, N., MWANKE, M. AND DRABO, I. Use of successional sowing in evaluating cowpea (*Vigna unguiculata*) adaptation to drought in the Sudan savannah zone. 2. Response of reproductive traits 83

REES, D. J., QURESHI, Z. A., MEHMOOD, S. AND RAZA, S. H. Catchment basin water harvesting as a means of improving the productivity of rain-fed land in upland Balochistan 95

ANIMALS

SCHRIJVER, R. DE, FREMAUT, D. AND BROECK, M. VAN DEN Effects of short-term feeding of clenbuterol on nitrogen retention, performance and meat quality in finishing pigs 105

PATTERSON, D. C. Effect of concentration and blend of added fat in the diet on the performance of growing pigs 111

PATTERSON, D. C. AND KILPATRICK, D. J. Effluent from grass silage for finishing pigs 119

WILKINSON, R. G. AND GREENHALGH, J. F. D. Growth of lambs offered fixed amounts of roughage and concentrate either simultaneously or sequentially 125

O'DOHERTY, J. V. AND CROSBY, T. F. Effect of premating shearing on reproductive performance in ewe lambs after oestrus synchronization 135

ABOUL-NAGA, A. M., MANSOUR, H., ABOUL-ELA, M. B., MOUSA, M. T., HASSAN, FERIAL AND EL-HOMMOSI, F. Oestrus activity in three subtropical sheep breeds in Upper Egypt and response to long-day light treatment 139

ILLIUS, A. W. AND GORDON, I. J. Prediction of intake and digestion in ruminants by a model of rumen kinetics integrating animal size and plant characteristics 145

NEWBOLD, C. J., BROCK, R. AND WALLACE, R. J. Influence of autoclaved or irradiated *Aspergillus oryzae* fermentation extract on fermentation in the rumen simulation technique (Rusitec) 159

WALLACE, R. J. AND NEWBOLD, C. J. Effects of bentonite on fermentation in the rumen simulation technique (Rusitec) and on rumen ciliate protozoa 163

BOOK REVIEWS 169

PART 2 (APRIL 1991)

Instructions to Authors PAGE

REVIEW

HOLDER, A. T., ASTON, R. AND FLINT, D. J. Potential of immunization for increasing animal production 175

CROPS AND SOILS

EHLERS, W. Leaf area and transpiration efficiency during different growth stages in oats 183

WHITE, E. M. Response of winter barley cultivars to nitrogen and a plant growth regulator in relation to lodging 191

JOHNSON, D. E., LEE, P. G. AND WILMAN, D. Experiments with upland rice in southern Belize: fertilizer application, weed control, plant spacing, sowing rate and variety 201

MAHAPATRA, B. S., SHARMA, G. L. AND SINGH, N. Integrated management of straw and urea nitrogen in lowland rice under a rice–wheat rotation 217

HAY, M. G. M., NEWTON, P. C. D. AND THOMAS, V. J. Nodal structure and branching of *Trifolium repens* in pastures under intensive grazing by sheep 221

CHAPMAN, D. F., ROBSON, M. J. AND SNAYDON, R. W. Quantitative carbon distribution in clonal plants of white clover (*Trifolium repens*): source–sink relationships during undisturbed growth 229

SEHTIYA, H. L., DENDSAY, J. P. S. AND DHAWAN, A. K. Internodal invertases and stalk maturity in sugarcane 239

AMIR, H. A. AND KHALIFA, F. M. Performance and yield of sunflower (*Helianthus annuus*) cultivars under rainfed and irrigated conditions in Sudan 245

HOGMIRE, H. W., DIENER, R. G. AND CRIM, V. L. Comparison of boom and airblast sprayers on T-trellis apples 253

ABDULLAH, W. D., POWELL, A. A. AND MATTHEWS, S. Association of differences in seed vigour in long bean (*Vigna sesquipedalis*) with testa colour and imbibition damage 259

SCULLION, J. AND MOHAMMED, A. R. A. Effects of subsoiling and associated incorporation of fertilizer on soil rehabilitation after opencast mining for coal 265

PAPANICOLAOU, E. P., APOSTOLAKIS, C. G., SKARLOU, V., NOBELI, C. AND KRITIDIS, P. Ratio of plant to soil concentrations of strontium-85 and its relation to properties of Greek soils 275

ABDEL MAGID, H. M. AND TABATABAI, M. A. Amide nitrogen transformation in waterlogged soil 281

ANIMALS

COATES, D. B., VAN DER WEIDE, A. P. A. AND KERR, J. D. Changes in faecal $\delta^{13}C$ in response to changing proportions of legume (C_3) and grass (C_4) in the diet of sheep and cattle 287

OWEN, E., JAYASURIYA, M. C. N., HAMILTON, R. AND LALENTA, M. Use of a long-term rumen simulation technique (Rusitec) to provide micro-organisms for *in vitro* digestibility assays 297

GIRDHAR, N., LALL, D. AND PATHAK, N. N. Effect of feeding *Leucaena leucocephala* as the sole ration on nutrient utilization and body weight in goats 303

BALCELLS, J., GUADA, J. A., CASTRILLO, C. AND GASA, J. Urinary excretion of allantoin and allantoin precursors by sheep after different rates of purine infusion into the duodenum 309

VULICH, S. A., O'RIORDAN, E. G. AND HANRAHAN, J. P. Use of n-alkanes for the estimation of herbage intake in sheep: accuracy and precision of the estimates 319

BOOK REVIEWS 325

PART 3 (JUNE 1991)

Instructions to Authors PAGE

CROPS AND SOILS

MCGOWAN, M., TAYLOR, H. M. AND WILLINGHAM, J. Influence of row spacing on growth, light and water use by sorghum 329

PARKER, C. J., CARR, M. K. V., JARVIS, N. J., PUPLAMPU, B. O. AND LEE, V. H. An evaluation of the minirhizotron technique for estimating root distribution in potatoes 341

LAST, P. J. AND BEAN, K. M. R. Controlling manganese deficiency in sugarbeet with foliar sprays 351

DE HARO, A. AND FERNANDEZ-MARTINEZ, J. Evaluation of wild sunflower (*Helianthus*) species for high content and stability of linoleic acid in the seed oil 359

POWELL, A. A., THORNTON, J. M. AND MITCHELL, J. A. Vigour differences in brassica seed and their significance to emergence and seedling variability 369

PILBEAM, C. J., HEBBLETHWAITE, P. D., RICKETTS, H. E. AND NYONGESA, T. E. Effects of plant population density on determinate and indeterminate forms of winter field beans (*Vicia faba*) 1. Yield and yield components 375

PILBEAM, C. J., HEBBLETHWAITE, P. D., NYONGESA, T. E. AND RICKETTS, H. E. Effects of plant population density on determinate and indeterminate forms of winter field beans (*Vicia faba*) 2. Growth and development 385

STÜTZEL, H. AND AUFHAMMER, W. Light interception and utilization in determinate and indeterminate cultivars of *Vicia faba* under contrasting plant distributions and population densities 395

AUFHAMMER, W. AND GÖTZ-LEE, I. Effects of inflorescence removal on interactions between reproductive storage sites of field beans (*Vicia faba*) under different shading treatments 409

ANIMALS

HODEN, A., PEYRAUD, J. L., MULLER, A., DELABY, L., FAVERDIN, P., PECCATTE, J. R. AND FARGETTON, M. Simplified rotational grazing management of dairy cows: effects of rates of stocking and concentrate 417

VAN VUUREN, A. M., TAMMINGA, S. AND KETELAAR, R. S. *In sacco* degradation of organic matter and crude protein of fresh grass (*Lolium perenne*) in the rumen of grazing dairy cows 429

ELMEDDAH, Y., DOREAU, M. AND MICHALET-DOREAU, B. Interaction of lipid supply and carbohydrates in the diet of sheep with digestibility and ruminal digestion 437

BOOK REVIEWS 447

INDEX 451